1. What is an object in SQL?

An object is any SQL server resource, such as data, schema, database etc.

1. What is Index? What are the advantages and disadvantages of using Indexes?

Index is database object based on table column for faster retrieval of data

Pro: quickly find data, find matching rows in join clause, maintain uniqueness of key column during insert and update, to sort, aggregate and group data

Con: additional disk space, insert update, delete statement become slow, clustered index always cover a query

1. What are the types of Indexes?

Clustered and non-clustered indexes

1. Does SQL Server automatically create indexes when a table is created? If yes, under which constraints?

Yes, under unique constraints

1. Can a table have multiple clustered index? Why?

No. One table have only one clustered index. A clustered index sorts and stores the data rows in the table based on the index key values. Therefore, only one clustered index can be created on each table because the data rows themselves can only be sorted in one order.

1. Can an index be created on multiple columns? Is yes, is the order of columns matter?

Yes, an index can be created on multiple columns, yes

1. Can indexes be created on views?

Indexes can only be created on views which have the same owner as the referenced table or tables.

1. What is normalization? What are the steps (normal forms) to achieve normalization?

Data normalization is a process of organizing data to minimize data duplication, and ensure data dependency. Normalization has a series of steps called “Forms”, the more steps you take the more normalized your table are. There are three steps: first normal form, second normal form and third normal form.

1. What is denormalization and under which scenarios can it be preferable?

Denormalization is about deliberately adding redundancy to improve performance. Denormalization is used when there is a lot of tables involved in retreiving data.

1. How do you achieve Data Integrity in SQL Server?

We can apply Entity integrity to the Table by specifying a primary key, unique key, and not null. Referential integrity ensures the relationship between the Tables. We can apply this using a Foreign Key constraint.

1. What are the different kinds of constraint do SQL Server have?

Not Null, Unique, Primary Key, Foreign Key, Check, Default, Create Index

1. What is the difference between Primary Key and Unique Key?

1. Primary key does not accept null value but unique constraint accepts one null value

2. one table can have only one primary key but a table can have multiple unique constraints

3. primary key will sort the data in asc order by default but unique constraint can not do that

4. primary key by default creates clustered index but unique constrain creates non clustered index

1. What is foreign key?

A FOREIGN KEY is a field (or collection of fields) in one table, that refers to the PRIMARY KEY in another table. The table with the foreign key is called the child table, and the table with the primary key is called the referenced or parent table.

1. Can a table have multiple foreign keys?

Yes, it can

1. Does a foreign key have to be unique? Can it be null?

No, it does not have to be unique, yes it can be null

1. Can we create indexes on Table Variables or Temporary Tables?

Yes we can add clustered and non-clustered index to a temp table

1. What is Transaction? What types of transaction levels are there in SQL Server?

A transaction is the propagation of one or more changes to the database.

Read Uncommitted, Read Committed, Repeatable Read, Serializable